

CLAIMS

1. A starting device (100) for at least one internal combustion engine, in particular a pull-rope type starting device for at least one two-stroke or four-stroke motor, which comprises at least one pulley or rope drum (4) which is rotatably held in at least one housing (1), wherein said starting device, for generating the drive torque for the motor shaft by means of at least one handle (10), in particular by means of at least one starter handle or pull handle, is rotatable by way of at least one load transfer means (9), in particular by way of at least one starter rope or pull-rope, and by way of at least one elastic coupling element (6), in particular by way of at least one spiral spring, is connected to at least one engaging element (5), in particular to at least one ratchet-type engaging element, by means of which the drive torque can be transmitted to the motor shaft,

characterised in that

in a gap between

- the pulley or rope drum (4), in particular between the axle of the pulley or rope drum (4), and
- the coupling element (6) or the engaging element (5), in particular the axle of the engaging element (5),

at least one bushing or sleeve (8), in particular a thin-walled bushing or sleeve (8), is provided, by means of which this gap can at least partly be filled.

2. The starting device according to claim 1, characterised in that the bushing or sleeve (8)
  - is guided so as to be torsionally rigid on the axle of the pulley or rope drum (4); and/or
  - has play in relation to the axle of the engaging element (5).
3. The starting device according to claim 1 or 2, characterised in that the bushing or sleeve (8)
  - is in the shape of a hollow cylinder; and/or
  - can be put over the two opposite ends of the shafts, in particular of the drum shaft or the motor shaft, so that the coupling element (6) does not become deformed.
4. The starting device according to at least one of claims 1 to 3, characterised in that the bushing or sleeve (8) essentially extends along the entire length of the coupling element (6).
5. The starting device according to at least one of claims 1 to 4, characterised in that when the starting device (100) is activated, in particular when the handle (10) is pulled, the coupling element (6) places itself around the bushing or sleeve (8).
6. The starting device according to at least one of claims 1 to 5, characterised in that the bushing or sleeve (8) is made from metal, in particular from hardened metal.
7. The starting device according to at least one of claims 1 to 6, characterised in that the gap

- between the pulley or rope drum (4), in particular between the axle of the pulley or rope drum (4), and the coupling element (6) and/or
  - between the pulley or rope drum (4), in particular the axle of the pulley or rope drum (4), and the engaging element (5), in particular the axle of the engaging element (5) is in the shape of at least one design-related gap or in the shape of at least one design-related separation joint.
8. The starting device according to at least one of claims 1 to 7, characterised in that the coupling element (6) is pretensioned or comprises pretension.
9. A starting device (100) for at least one internal combustion engine, in particular a pull-rope type starting device for at least one two-stroke or four-stroke motor, which comprises at least one pulley or rope drum (4) which is rotatably held in at least one housing (1), wherein said starting device, for generating the drive torque for the motor shaft by means of at least one handle (10), in particular by means of at least one starter handle or pull handle, is rotatable by way of at least one load transfer means (9), in particular by way of at least one starter rope or pull-rope, and by way of at least one pretensioned elastic coupling element (6) or an elastic coupling element (6) comprising pretension, in particular by way of at least one spiral spring, is connected to at least one engaging element (5), in particular to at least one ratchet-type engaging element, by means of which the drive torque can be transmitted to the motor shaft.
10. An internal combustion engine, in particular a two-stroke or four-stroke motor, characterised by at least

one starting device (100) according to at least one of claims 1 to 9.

11. A work tool, in particular a portable hand tool powered by an internal combustion engine, such as for example a brush cutter, a chainsaw, a motor saw, an abrasive cutting-off machine or the like, characterised by at least one internal combustion engine according to claim 10, which internal combustion engine comprises at least one starting device (100) equipped according to at least one of claims 1 to 9.
12. The use of at least one starting device (100) according to at least one of claims 1 to 9, with said starting device (100) being associated with at least one internal combustion engine according to claim 10, for a work tool according to claim 11.